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EXAMINER

PRITCHETT, JOSHUA L

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/672,687

Applicant(s)

FERNANDO ET AL.

Examiner

Joshua L. Pritchett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 7-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-53 is/are rejected.
- 7) ☒ Claim(s) 43 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

This action is in response to Amendment after non-final rejection filed May 31, 2005.

Claims 1-4 and 7-53 have been amended and claims 5 and 6 have been cancelled as requested by the applicant.

Claim Objections

Claim 43 is objected to because of the following informalities: claim 43 lacks proper antecedent basis to support the limitation, "the control circuit." Claim 43 depends from claim 9 which does not mention a control circuit. The examiner suggests changing the dependency of claim 43 to depend from claim 39.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1-3, 5-13, 19, 37-45, 47-50 and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Baughman (US 5,197,242).

Regarding claim 1, Baughman discloses an adjustable opaque window component comprising an external wall (6); an internal wall (8); a light transmission control layer (14); and a shock absorbing layer (col. 4 lines 35-40) wherein the external wall and the internal wall provide a cavity between them (Fig. 2), wherein the light transmission control layer and the shock absorbing layer are positioned in the cavity (Fig. 2), wherein the light transmission control layer is supported by the shock absorbing layer (col. 4 lines 35-40, Fig. 2).

Regarding claim 2, Baughman discloses the shock absorbing layer comprises a first flexible sheet (col. 4 lines 35-40) and the light transmission control layer is attached to the first flexible sheet (Fig. 2).

Regarding claim 3, Baughman discloses the first flexible sheet is made of polyester or polycarbonate (col. 4 lines 35-40).

Regarding claim 5, Baughman discloses the external wall and the internal wall are substantially hard (col. 3 lines 5-6).

Regarding claim 6, Baughman discloses the external wall and the internal wall are made of glass (col. 3 lines 5-6).

Regarding claim 7, Baughman discloses the light transmission control layer comprises a plurality of light transmission control cells (col. 2 lines 22-24).

Regarding claim 8, Baughman discloses the light transmission control cells are arranged to form a lattice (col. 2 lines 22-24).

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Regarding claims 9 and 49, Baughman discloses the opacity of the light transmission control cells is variably adjustable (col. 7 lines 56-60).

Regarding claims 10 and 50, Baughman discloses the opacity of each of the light transmission control cells is adjusted by changing amplitude of electric field applied on the light transmission control cell (col. 5 lines 60-67).

Regarding claim 11, Baughman discloses each of the light transmission control cell comprises a first electrode (7) a second electrode (11) and an electro-optic material (14) in between the first and second electrodes (Fig. 2).

Regarding claim 12, Baughman discloses the electro-optic material comprises liquid crystal or nonlinear optical material (col. 4 lines 41-42).

Regarding claim 13, Baughman discloses the liquid crystal comprises a dichroic dye doped liquid crystals (col. 6 lines 30-31).

Regarding claim 19, Baughman discloses the liquid crystal is doped with dichroic light absorbing dye (col. 6 lines 30-31).

Regarding claim 37, Baughman discloses the first flexible sheet is coated with transparent electrically conductive coating (col. 4 lines 35-40).

Regarding claim 38, Baughman discloses the transparent conductive coating is made of indium tin oxide (col. 4 lines 35-40).

Regarding claim 39, Baughman discloses the transparent conductive coating forms electrical wiring to each light transmission control cell (col. 2 lines 22-24).

Regarding claim 40, Baughman discloses a control circuit that controls each of the light transmission control cells individually with the electrical wiring (col. 7 lines 56-61).

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Regarding claim 41, Baughman discloses a control circuit that controls the light transmission control cells collectively in part with the electrical wiring (col. 7 lines 56-61).

Regarding claim 42, Baughman discloses a control circuit that controls the light transmission control cells in whole with the electrical wiring (col. 2 lines 22-24, col. 7 lines 56-61).

Regarding claim 43, Baughman discloses a light sensor that measures the intensity of the incident light, wherein the control circuit controls the light transmission of the light transmission control cells based on the data provided by the light sensor (col. 7 lines 56-61).

Regarding claim 44, Baughman discloses the light transmission of the light transmission control cells in controllable manually (col. 7 lines 56-58). Baughman states the automatic controls disclosed in the invention made be further added, showing that the invention is capable of manual control.

Regarding claim 45, Baughman discloses an array of photovoltaic cells, wherein the array provides electricity for operation of the light transmission control layer (col. 7 lines 56-61).

Regarding claim 47, Baughman discloses the adjustably opaque window component is an architectural window component, a glass door or a partition (col. 7 lines 51-55).

Regarding claim 48, Baughman discloses an ultraviolet light blocking layer that is positioned between the exterior wall and the light transmission control layer (col. 7 lines 31-37).

Regarding claim 53, Baughman discloses attachment among the external wall, the internal wall, the light transmission control layer, and the shock absorbing layer is done with pressure sensitive adhesive (col. 4 lines 21-23, col. 3 lines 65-66).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 14-18, 20, 51 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baughman.

Regarding claim 4, Baughman teaches the invention as claimed but lacks reference to the claimed thickness. Baughman states that the distance between the walls (7 and 11) is about 1 mm (col. 4 lines 46-47). The light transmission control layer (14) takes up a majority of that space. Therefore it would be extremely obvious to one of ordinary skill in the art to have the first flexible layer having a thickness of about 0.1 to about 0.2 mm in the broadest reasonable interpretation of the term “about” in the thickness range. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Baughman invention include the first flexible layer having the claimed thickness for the purpose of maximizing the amount of the light transmission control layer material while still managing to prevent damage to the light transmission control layer from minor impacts.

Regarding claims 14-18 and 20, Baughman teaches the invention as claimed but lacks reference to the use of the claimed liquid crystal materials. It is extremely well known in the art

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to use the claimed liquid crystal materials to create a light transmission control layer. Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Baughman invention created with any of the claimed liquid crystal materials for the purpose of adapting the liquid crystal to the desired opacity.

Regarding claim 51, Baughman teaches the claimed invention except for the duplication of the shock absorbing layer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to duplicate the shock absorbing layer of wall 11 and put it on wall 7, since it have been held that a mere duplication of working parts of a device involves only routine skill in the art. One would have been motivated to duplicate the shock absorbing layer for the purpose of protecting the light transmission control layer from impacts on both sides of the window component.

Regarding claim 52, Baughman teaches the invention as claimed but lacks reference to the shock absorbing layer being a gel. It is extremely well known in the art to have a gel as a shock absorbing layer. Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the shock absorbing layer be a gel for the purpose of minimizing impulse changes on the light transmission control layer due to impacts.

Claims 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baughman in view of Xu (US 5,638,200).

Regarding claim 21, Baughman teaches the invention as claimed including the use of polarizing elements on both the internal and external walls (col. 8 lines 1-2) but lacks reference

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to the direction of the polarization. Xu teaches a first polarizing layer (19) that is positioned between the external wall and the light transmission control layer and a second polarizing layer (3) that is positioned between the first flexible sheet and the interior wall; wherein the direction of polarization of the first polarizing layer is substantially perpendicular to the direction of the second polarizing layer (Fig. 5). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Baughman invention have the polarization directions as taught by Xu for the purpose of filtering out polarized light incident on the window component.

Regarding claim 22, Baughman teaches the first polarizing layer is integrated with the external wall and the second polarizing layer is integrated with the internal wall (col. 8 lines 1-2).

Regarding claims 23 and 24, Baughman teaches the invention as claimed but lacks reference to the type of polarizing layers. It is extremely well known in the art to use either absorptive or birefringence based polarizing layers. Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the polarization layers of Baughman be either absorptive or birefringence based as is known in the art for the purpose of efficiently filtering polarized light incident the window component.

Regarding claim 25, Baughman teaches the light transmission control cell further comprises a first electrode (7) that is substantially adjacent the first polarizing layer (6) and a second electrode (11) that is substantially adjacent the first flexible sheet (col. 4 lines 35-40), wherein the liquid crystal (14) is positioned between the first and second electrodes (Fig. 2).

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Regarding claim 26, Baughman teaches the first and second electrodes comprise a substantially transparent plastic substrate coated with transparent conductive coating (col. 4 lines 35-40).

Regarding claim 27, Baughman teaches the invention as claimed but lacks reference to the preferential alignment of the liquid crystal. Xu teaches the first electrode is treated with a polymer to give the adjacent liquid crystal a preferential alignment and the second electrode is treated with a polymer to give the adjacent liquid crystal a preferential alignment (col. 6 lines 1-13). Xu further teaches the liquid crystals adjacent the first and second polymer layers are pre-tilted from the planes of the first and second polymer layers, wherein the preferential direction of the first and second polymer layer is substantially parallel to the direction of polarization of the first and second polarizing layer respectively (col. 6 lines 1-13). Xu further teaches the pre-tilting angle θ is in a range from 0 degrees to about 45 degrees and is about 30 degrees (col. 6 lines 54-63). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Baughman invention include the preferential alignment of Xu for the purpose of efficiently filtering the light incident the window component.

Claims 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baughman in view of Xu as applied to claim 25 above, and further in view of Kataoka (US 2002/0005918).

Regarding claims 31, 34 and 35, Baughman in combination with Xu teaches the invention as claimed but lacks reference to the use of spacers. Kataoka teaches the light control transmission cell comprises a plurality of spacers (81A-B), wherein the spacers maintain the predetermined distance between the first and second electrodes (Fig. 6A). Kataoka further

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teaches the spacers are randomly distributed with the light transmission control cell (Fig. 6A).

Kataoka further teaches the spacers comprise a sphere and the sphere contacts the first and second electrodes (Fig. 6A). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include in the Baughman invention the spacers of Kataoka for the purpose of increasing the ability of the window component to absorb impacts.

Regarding claims 32 and 33, Baughman in combination with Xu and Kataoka teaches the invention as claimed but lacks reference to the use of adhesive on the spacers. It is extremely well known in the art to provide adhesive on spacers in a liquid crystal cell. Official Notice is taken. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the spacers have adhesive for the purpose of holding the spacers in place so as not to damage the light transmission control layer by moving through the layer.

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baughman in view of Xu and Kataoka as applied to claim 35 above, and further in view of Tungare (US 2003/0013219).

Baughman in combination with Xu and Kataoka teaches the invention as claimed but lacks reference to the size of the sphere spacer. Tungare teaches the sphere having a diameter of about 5 to 30 microns (para. 0144) and the thickness of the adhesive layer is less than about 5 microns (para. 0144). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Baughman invention include spacers the size of Tungare for the purpose of optimizing the distance between the electrodes.

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Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baughman in view of Love (US 6,536,828).

Baughman teaches the invention as claimed but lacks reference to the use of the window component in a vehicle. Love teaches the use of an adjustably opaque window component in a vehicle (Figs. 1-2). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Baughman invention used in a vehicle as taught by Love for the purpose of tinting car window components to minimizing heating of the car while in a parking lot.

Response to Arguments

Applicant's arguments, see Amendment, filed May 31, 2005, with respect to objection to claims 13-20 and 23-28 have been fully considered and are persuasive. The objection of claims 13-20 and 23-28 has been withdrawn.

Applicant's arguments filed May 31, 2005 have been fully considered but they are not persuasive.

Applicant argues that the newly amended claim 1 is distinguishable over the prior art because the Baughman reference discloses a window itself and not a window component. The use of the transitional term, "comprising," allows the reference to include more features than those claimed in the claim language. If the applicant wishes to limit the features to only those present in the claim language the examiner suggest using the transitional phrase, "consisting of."

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The applicant further argues that the present invention does not need the glass of a dual pane window to function. Although the current invention may not require the use of a dual pane window such a feature is not eliminated as a possibility based on the current claim language.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L. Pritchett whose telephone number is 571-272-2318. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A. Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLP



DREW A. DUNN
SUPERVISORY PATENT EXAMINER